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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,514	12/04/2003	Noboru Kunimatsu	501.43246X00	7191
20457	7590	05/17/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			DUDEK, JAMES A	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

N.A

Office Action Summary	Application No. 10/726,514	Applicant(s) KUNIMATSU ET AL.	
	Examiner James A. Dudek	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 is/are allowed.
- 6) ☒ Claim(s) 2-6 is/are rejected.
- 7) ☒ Claim(s) 7-9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2001/0020992 ("992").

Per claim 2, 992 teaches a liquid crystal display device being characterized in that respective substrates are arranged to face each other in an opposed manner with liquid crystal sandwiched therebetween [see figures 3a-3c] and molecules of the liquid crystal are activated due to electric fields generated between one electrodes which are formed on a liquid crystal side of one substrate out of the respective substrates and another electrodes which are formed on a liquid crystal side of another substrate out of the respective substrates [see electrodes 16 and 18], the liquid crystal display device includes one polarizer and another polarizer [see paragraph 86], and one electrode is constituted of a mass of a plurality of sub pixels [see figures 1-3, where the subpixels are each region within the electrodes regions surrounding points 8] and includes protruding portions which are positioned at the substantially centers of respective sub pixels on a surface of another substrate which faces the liquid crystal [see protrusion 8], and projecting portions or recessed portions which are provided about these protruding portions [see 10a-10d], the projecting portions or the recessed portions being substantially aligned with

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respective directions of polarization axes of one polarizer which is provided to a surface of one substrate at a side opposite to a liquid crystal side and of another polarizer which is provided to a surface of another substrate at a side opposite to a liquid crystal side [see figure 2 and paragraph 86].

992 lacks the polarizer being provided on a surface of one substrate at a side opposite to a liquid crystal side and being provided on a surface of another substrate at a side opposite to a liquid crystal side. However this was notoriously well known as placing them inside the cell is complicated and thus more difficult to manufacture. Accordingly, it would have been obvious to one of ordinary skill at the time of invention to simplify the manufacturing process.

Per claims 3-4, 992 teaches a liquid crystal display device being characterized in that the liquid crystal display device includes, on each pixel region of a liquid-crystal-side surface of one substrate out of respective substrates which are arranged to face each other in an opposed manner with liquid crystal sandwiched therebetween [see figures 40 and 37a-37e], a switching element which is driven by scanning signals from a gate signal line and a pixel electrode to which video signals are supplied from a drain signal line via the switching element [see paragraph 173], a counter electrode which corresponds in common to respective pixel regions formed on respective pixel regions on a liquid-crystal-side surface of another substrate [see paragraph 141], and polarizer and another polarizer and the pixel electrode is constituted of a mass of a plurality of sub pixels and includes protruding portions which are positioned at the substantially centers of respective sub pixels on a surface of another substrate which faces the liquid crystal [see figures 41, where the subpixels are each region within the electrodes regions surrounding points 8], and projecting portions or recessed portions which are provided about the protruding portions, the projecting portions or the recessed portions being substantially aligned with the directions of respective polarization axes of one polarizer which is provided to a surface of one substrate at a side opposite to a liquid crystal side and of another polarizer which is provided to a surface of another substrate at a side opposite to a liquid crystal side [see 74 of figure 41].

992 lacks the polarizer being provided on a surface of one substrate at a side opposite to a liquid crystal side and being provided on a surface of another substrate at a side opposite to a liquid crystal side. However this was notoriously well known as placing them inside the cell is

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complicated and thus more difficult to manufacture. Accordingly, it would have been obvious to one of ordinary skill at the time of invention to simplify the manufacturing process.

Per claims 5-6, 992 teaches a liquid crystal display device according to any one of claims 2 to 4, but lack an explicit teaching of using a chiral material. However, it was well known to not to use chiral to produce a random twist direction and it was well known to use chiral to produce a uniform twist direction. Accordingly, it would have been obvious to one of ordinary skill at the time of invention to use or not use chiral dopant.

Allowable Subject Matter

Claim 1 is allowed.

The prior art of record teaches a liquid crystal display device being characterized in that molecules of liquid crystal interposed between respective substrates which are arranged to face each other in an opposed manner are arranged in the vertical direction with respect to the substrate at the time of applying no voltage, and the liquid crystal display device further includes a plurality of protruding portions which are scattered on a surface of one substrate, and projecting portions or recessed portions which are provided about these protruding portions, the projecting portions or the recessed portions being substantially aligned with the directions of respective polarization axes of one polarizer which is provided to a surface of one substrate at a side opposite to a liquid crystal side and of another polarizer which is provided to a surface of another substrate at a side opposite to a liquid crystal side. The prior art of record does not teach nor suggest, in combination with the limitations supra, a plurality of protruding portions which are scattered on a surface of one substrate being in contact with the liquid crystal in respective pixel regions.

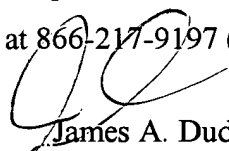
Claims 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Dudek whose telephone number is 571-272-2290. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James A. Dudek
Primary Examiner
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